

### REMARKS

Claims 1-10 have been canceled without prejudice. Claims 11-20 are pending.

Submitted herewith is a declaration of Stefan Szepessy under 37 C.F.R. 1.132 in support of the Applicants argument of non-obviousness of the claimed invention. Mr. Szepessy, having a PhD in Mechanical Engineering, concludes that "claimed arrangement of combining a rubber material and a spring element as a support member for a spindle in a centrifugal separator dampening rotordynamical oscillations of the spindle and other rotating and non-rotating parts connected to and oscillating with the spindle (which must not be confused with the support members for the support of the centrifugal separator to the mounting foundation) would not have been obvious at the time the claimed invention was made to one of ordinary skill in the art, in view of the references cited." Decl. of Szepessy par. 2.

The numbered paragraphs below correspond to the similarly numbered paragraphs of the Office Action mailed April 14, 2003.

1.-2 No response needed.

### Specification

3. No response needed.

4. The title of the specification has been replaced by "A Centrifugal Separator Having a Rubber and Spring Spindle Support Device." as required by the Examiner.

### Claim Rejections – 35 U.S.C. 103

5.-6. No response needed.

7. Claims 1-20 were rejected as being obvious over WO 97/13583 in view of GB 2143299;

8. Claims 1-20 were rejected as being obvious over WO 97/13583 in view of U.S. Patent No. 2,230,069 to Rushmore;

9. Claims 1-20 were rejected as being obvious over U.S. Patent No. 2,487,343 to Kopf in view of GB 2143299; and

10. Claims 1-20 were rejected as being obvious over Kopf ('343) in view of Rushmore ('069).

Claims 1-10 have been canceled. The remaining claims recite a centrifugal rotator having a rubber and spring spindle support device to absorb and dampen the rotordynamical forces of the spindle.

GB 2143299 discloses a load-bearing element and states, "[i]n general, vibration isolators require significant damping to minimise both low and high frequency effects. Conventionally this has been partially achieved using a resilient mounting in shear, or alternatively a damper unit containing oil or pressurised gas. In the case of resilient mounts, these are subject to rapid wear when loaded in shear, or to age-hardening when in compression giving rise to a gradual collapse of the support. In addition, there is the problem of relaxation owing to a gradual change in state of the resilient material preventing it from maintaining its true resilience. Therefore, it is evident that, whilst the resilient mount provides good damping its load-bearing properties are poor when compared with a metal spring. Further, variable damping properties are not possible since the shear mode of operation restricts operation to a single material." Page 1, lines 21 to 38.

Thus, GB 2143299 suggests that a person skilled in the art would not have used rubber material in such an element where high load properties are needed, which is the case for a supporting device in centrifugal separators for supporting the oscillating system following the oscillating movements of the spindle of the centrifugal rotor. Hence, GB 2143299 teaches away from the invention of claim 11 and supports the attached Szepessy declaration that states that "it would not have been expected that a rubber material could absorb the energy without rapid degradation and without rapidly becoming harder, more brittle and less elastic due to at least fatigue, stretching or excessive heating. The claimed combination would not have been expected to dampen the radial movement of the centrifugal separator spindle for any reasonable length of

time without damage to the rubber material due to the expected high forces acting on the rubber material." Decl. of Szepessy par. 4.

It is disclosed in GB 2143299 that, "[s]ome examples of the application of this device are engine-supporting mounts, vehicle suspension springs and shock absorbers, industrial vibration and shock isolators and cam-follower mechanisms preventing the phenomenon known as "follower bounce" normally created by spring surge which causes rapid failure of valve springs used in engines." Page 1, lines 119 to 125. Industrial vibration is not the same as rotor dynamical oscillations in a centrifugal separator, which are dampened by the present invention.

Thus, it is not obvious to combine the teachings as stated in the Office action. There is no teaching or motivation to combine the references particularly because the GB 2143299 reference teaches that resilient mounts are subject to degradation when loaded in shear. It only becomes obvious to combine the teachings of the references after using the disclosure of the present application as a blueprint for piecing together the prior art to defeat patentability.

In view of the cancellation of claims 1-10 and the above remarks, the Applicants submit that it would not have been obvious to combine the teachings of GB 2143299 with either WO 97/13583 or Kopf ('343) for at least the reason that the high energy generated by the rotordynamically oscillating system of a centrifugal separator would subject the resilient mounts of the support structure to rapid wear when loaded in shear, or to age-hardening when in compression giving rise to a gradual collapse of the support.

The Applicants respectfully request withdrawal of the 35 U.S.C. 103 rejection of claims 11-20 over WO 97/13583 or Kopf ('343) in view of GB 2143299.

Dependent claims 12-20 should be allowable for at least the same reasons.

Rushmore ('069) discloses a non-vibratory spring of the type used for closing cam-opened poppet valves of high speed internal combustion engines. Springs of this type are not for damping of oscillations in the movements of the valves in following the cam.

The object of the invention disclosed in Rushmore ('069) is to prevent in such a spring the creation of "inter-coil, elasticity-inertia vibrations, superposed on the normal compression and expansion movements of the coil as a whole." Col. 1, lines 4-9. Further, the Rushmore

('069) invention teaches that the unit pressures and the energy dissipation are so small that very long life may be expected. Col 3, lines 56-63. By implication, if the energy dissipation were large, then the soft, resilient rubber would have a short life.

In contrast, the spring in the present invention is a completely different type of spring designed as part of a support device for a spindle carrying a centrifuge rotor of a centrifugal separator that develops high rotordynamical oscillating forces that need to be dissipated.

Thus, it would not have been obvious to combine the teachings of Rushmore ('069) with either WO 97/13583 or Kopf ('343) when designing a support device for supporting a spindle carrying a centrifuge rotor for at least the reason that the invention of Rushmore ('069) would not be expected to have a long life in a centrifugal rotator.

The Applicants respectfully request withdrawal of the 35 U.S.C. 103 rejection of claims 11-20 over WO 97/13583 or Kopf ('343) in view of Rushmore ('069).

Dependent claims 12-20 should be allowable for at least the same reasons.

#### Conclusion

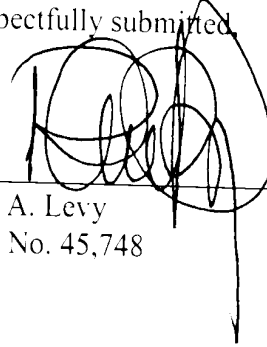
Applicants respectfully request allowance of all pending claims.

Enclosed is a \$410 check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050.

Date: \_\_\_\_\_

8/18/03

Respectfully submitted,



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